UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,070	08/22/2003	Prasanna Adhikari	57221/O231	9706

23363 7590 10/04/2006

CHRISTIE, PARKER & HALE, LLP
PO BOX 7068
PASADENA, CA 91109-7068

EXAMINER	
DUONG, OANH L	

ART UNIT	PAPER NUMBER
2155	

DATE MAILED: 10/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/647,070	ADHIKARI, PRASANNA	
	Examiner	Art Unit	
	Oanh Duong	2155	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 June 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *06/26/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-24 are presented for examination.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 16, 17, 18, 20, 21 and 23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The feature "configuring the plurality of network node never to generate beacon packets" or "wherein the at least one root node is configured to always operate as a root node and the network nodes are configured to always operate as node that are not root nodes" found no support by applicant's specification. Examiner respectfully requests applicant to particularly point out where applicant's specification supporting the above feature.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claim 20 is rejected under 35 U.S.C. 102(e) as being anticipated by **Gai** et al. (hereafter, Gai), U.S. **2002/0147800** A1.

Regarding claim 20, **Gai** teaches a method for establishing a self-healing tree network (i.e., *reconfigure the network following a change, such as a link failure*, page 3 paragraph [0020] and page 4 paragraph [0041]) including at least one root node (i.e., the "root" switch") and a plurality of network nodes (i.e., switches) (page 1 paragraphs [0007]-[0009]), comprising:

generating a beacon packet (i.e., BPDUs) including a unique source address by the at least one root node (i.e., *the root switch generates and transmits BPDUs from its ports every hello time*, page 2 paragraph [0014] and page 6 page 6 paragraph [0057]);

transmitting the beacon packet downstream at an interval (i.e., hello time) that is less than an aging interval (i.e., maximum age) used to age the beacon packet (i.e., *BPDU frames are received every hello time, which is significantly less than the maximum age*, page 2 paragraph [0014]), wherein the network nodes are configured to use the age of the beacon packet to determine a network isolation (page 2 paragraphs [0014]-[0015]: Gai discloses switch(s) uses the maximum age in the BPDUs to identify possible link or device failure), and

wherein the at least one root node is configured to always operate as a root node and the network nodes are configured to always operate as node that are not root nodes (i.e., execution of the spanning tree algorithm causes the switches to elect a single switch, among all the switches within each network, to the "root" switch, page 1 paragraph [0009]).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-4, 7-8, and 12-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gai et al, (hereafter, Gai), US 2002/0147800 A1, in view of **Williams**, U.S. Patent No. **6,993,033** B1.

Regarding claim 1, **Gai** teaches a method for detecting a network isolation in a network comprising a plurality of network nodes and a group of one or more root nodes (abstract and page 1 paragraphs [0007]-[0009]) (comprising:

Configuring the group of root node to periodically generate beacon packets (page 1 paragraphs [0007]-[0009] and page 2 paragraph [0014]);

configuring the plurality of network node never to generate beacon network changes (page 1 paragraphs [0007]-[0009] and page 2 paragraph [0014]);

receiving at the plurality of network nodes a beacon packet originating from the group of root nodes and received through an adjacent one of the root or network nodes (page 1 paragraph [0004]); and

if the aging indicator is not reset by a second beacon packets received through the adjacent one of the root or network nodes before a second interval greater than the aging interval (page 2 paragraphs [0014]-[0015] and page 6 paragraph [0059])), then:

indicating a network isolation condition (page 2 paragraphs [0014]-[0015);

and listening for a new beacon packet originating from the group of root nodes and received through a different one of the root or network nodes (page 2 paragraph (0016], (page 7 paragraphs [0061]-[0068]), and page 8 paragraph [0075]).

Gai does not explicitly teach storing at each of the plurality of network nodes an aging indicator for the received beacon packet after an aging interval, and the aging indicator is not reset by a second received beacon packet.

Williams teaches the network device includes a timer that defines an aging interval associated with the address table (see abstract). **Williams** teaches storing an aging indicator (i.e., hit bit) for a received packet (i.e., set/store hit bit when new entry/address corresponding to a received packet/frame is created, Fig. 4 col. 8 lines 49-59); and the aging indicator is not reset by a second received beacon packet (the aging indicator is not reset because no packet has been received) (i.e., hit bit or aging indicator in the address table is not set/reset since nodes corresponding to entries in the address table have not transmitted data/packet during a predetermined interval, col. 8 lines 60-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the aging indicator on the address table of **Williams** in the process of detecting a network isolation/fault in **Gai**. One would be motivated to do to allow entries in the address table corresponding to network nodes that have not transmitted any packet during a predetermined period of time to be deleted, thereby improving new entries in the address table (**Williams**, col. 1 lines 39-40).

Regarding claim 2, **Gai** teaches the method of claim 1, wherein each of the beacon packets comprises a universal destination address (page 2 paragraph [0011]).

Regarding claim 3, **Gai** teaches the method of claim 1, said receiving further comprising:

receiving the new beacon packet from another adjacent one of the root or network node other than the adjacent one of the root or network nodes (pages 2 paragraphs [0014]-[0016], and (page 7 paragraphs [0061]-[0068])).

Gai does not explicitly teach dropping the new beacon packet received from said another adjacent one of the root or network node when the network isolation condition is not indicated

Williams teaches dropping packet/entry received from the neighboring node when the network isolation condition is not indicated (when network is normally operating, the existing entries corresponding to data packets received from the neighboring node in the address table will be dropped/deleted after a predetermined period of time to make room available for new entries, col. 8 lines 60-61).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the teachings of **Gai** to drop a received packet as in **Williams**. One would be motivated to do so to allow entries in the address table corresponding to network nodes that have not transmitted data during a predetermined period of time to be dropped/deleted, thereby improving new entries in the address table (**Williams**, col. 1 lines 39-40).

Regarding claim 4, Gai teaches the method of claim 3, further comprising:

Transmitting a request to said another adjacent one of the root or network nodes to register said another adjacent one of the root or network nodes as a parent node

when the network isolation condition is indicated (page 5 paragraph [0048] and page 7 paragraphs [0061]-[0068]).

Regarding claim 7, **Gai** teaches the method of claim 1, wherein the second interval is at least twice the aging interval (page 2 paragraph [0014]).

Regarding claim 8, Gai teaches the method of claim 1, further comprising:

continuously receiving a plurality of beacon packets that are individually transmitted by at least one of the root nodes at an interval that is shorter than the predetermined aging interval (page 2 paragraph [0014]).

Regarding claim 12, **Gai** teaches the method of claim 1.

Gai does not explicitly teach storing performed by a network switching element of a node without any processing by a central processing unit (CPU) of the node.

Williams teaches storing performed by a network switching element of a node without any processing by a central processing unit (CPU) of the node (Fig. 3, col. 8 lines 26-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify teachings of **Gai** to perform storing by a network switching element of a node without any processing by a CPU of the node as in **Williams**. One would be motivated to do so reduce CPU processing time and load, thereby enhancing network performance.

Regarding claim 13, Gai teaches the method of claim 1, wherein the network comprises an Ethernet protocol network (page 1 paragraph [0002]).

Regarding claim 14, **Gai** teach the method of claim 1.

Gai does not explicitly teach the age indicator stored in an age field of a packet address table.

Williams teaches the age indicator stored in an age field of a packet address table (col. 8 lines 42-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the age indicator stored in an age field of a packet address table of **Williams** in the process of detecting a network isolation/fault in **Gai** One would be motivated to do to allow entries in the address table corresponding to network nodes that have not transmitted data during a predetermined period of time to be deleted, thereby improving new entries in the address table (**Williams**, col. 1 lines 39-40).

Regarding claim 15, **Gai** teaches the method of claim 1.

Gai does not explicitly teach storing an age indicator for a plurality of stored data packets other than the beacon packet at the predetermined aging interval.

Williams teaches storing an age indicator for a plurality of stored data packets other than the beacon packet at the predetermined aging interval (col. 7 line 17-col. 8 lines 67).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Gai to store an age indicator for a plurality of stored data packets other than the beacon packet at the predetermined aging interval as in **Williams**. One would be motivated to do to allow entries in the address table corresponding to network nodes that have not transmitted data during a predetermined period of time to be deleted, thereby improving new entries in the address table (**Williams**, col. 1 lines 39-40).

Regarding claim 16, this claim recites a computer readable medium encoded with processing instructions for implementing a method of claim 1, discussed above, same rationale of rejection is applicable.

Regarding claim 17, this claim represents an apparatus comprising means for performing method of claim 1, discussed above, same rationale of rejection is applicable.

Regarding claim 18, this claim comprises limitations that are substantially the same as claims 1, discussed above, same rationale of rejection is applicable.

Regarding claim 19, **Gai** teaches the method of claim 18, the outage interval being at least twice the aging interval (page 2 paragraph [0014]).

7. Claims 5-6, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gai** in view of **Williams**, and further in view of **Meier** et al. (hereafter, Meier), U.S. Pub. No. **2004/0103282** A1.

Regarding claim 5, **Gai** teaches the method of claim 4.

the combination of teachings of Gai **and Williams** does not explicitly teach transmitting a discovery message upstream; and reply to the discovery message from said another adjacent one of the root or network nodes on an upstream port.

Meier teaches transmitting a discovery message upstream (i.e., discovering its potential parent by sending an Advertisement-Request message, i.e., page 15 paragraph [0359] and page 16 paragraphs [0387]-[0388]); another adjacent one of the root or network nodes (i.e., Advertisement-Reply message, page 16 paragraphs [0387]-[0389]).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the combination of teachings of **Gai and Williams** to transmit a discovery message and receive a reply to the discovery message as in **Meier**. One would be motivated to do so to allow a potential parent node to be fast and reliably discovered when failure of an old parent node or link to parent node is detected.

Regarding claim 6, **Gai** teaches the method of claim 4.

the combination of teachings of **Gai and Williams** does not explicitly teach receiving an approval said another adjacent one of the root or network nodes in response to the request, deleting a parent status of the another adjacent one of the root or network nodes, and storing an indication of said another adjacent one of the root or network nodes as the new parent node.

Meier teaches receiving an approval from said another adjacent one of the root or network nodes in response to the request (i.e., page 60 paragraph [1057] and page 16 paragraph [0392]), deleting a parent status of the another adjacent one of the root or network nodes (i.e., page 61 paragraph [1094]), and storing an indication of said another adjacent one of the root or network nodes as the new parent node (i.e., page 13 paragraph [0307], page 15 paragraph [0361] page 72 paragraph 1345 and 307]).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the steps of receiving an approval from said another adjacent one of the root or network nodes in response to the request, deleting a parent status of said another adjacent one of the root or network nodes, and storing an indication of said another adjacent one of the root or network nodes as the new parent node of **Meier** in the combination of teachings of **Gai and Williams.** One would be motivated to do so to assure that all nodes have successfully associated, authenticated and have security credentials cached (Meier, page 4 paragraph [0133]).

Regarding claim 9, **Gai** teaches the method of claim 1.

the combination of teachings of Gai **and Williams** does not explicitly teach transmitting the beacon packet received from the adjacent one of the root or network nodes to all neighboring network nodes.

Meier teaches transmitting the beacon packet received from the adjacent one of the root or network nodes to all neighboring network nodes (page 16 paragraph [0387]).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the combination of teachings of **Gai and Williams** to transmit the beacon packet received from the adjacent one of the root or network nodes to all neighboring network nodes as in **Meier**. One would be motivated to do so to enable network parameters and availability of parent node to be periodically advertised, thereby allowing an active parent node to be automatically discovered.

8. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gai** in view of **Williams**, and further in view of **Ogier,** U.S. Pub. No. **2003/0095504** A1.

Regarding claim 10, Gai teaches the method of claim 1.

The combination of **Gai and Williams** does not explicitly teach receiving a network reconfiguration command; and selecting a new parent node that is not a descendant node within the network in response to the network reconfiguration command.

Ogier teaches receiving a network reconfiguration command (i.e., page 5 paragraph [0078]; selecting a new parent node that is not a descendant node within the

network in response to the network reconfiguration command (page 5 paragraph [0078]).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the combination of teachings of **Gai and Williams** to select a new parent node responding to the network reconfiguration command as in **Ogier**. One would be motivated to do so to provide an improved neighbor discovery protocol that can efficiently establish/reestablish communications links between communications nodes (**Ogier**, page 1 paragraph [0003], lines 7-10).

Regarding claim 11, **Gai** teaches the method of claim 10.

the combination of teachings of **Gai and Williams** does not explicitly teach operating in a discovery state after receiving the network configuration command until an ancestor/descendent relationship is identified.

Ogier teaches operating in a discovery state after receiving the network configuration command until an ancestor/descendent relationship is identified (i.e., page 4 paragraph [0054]).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the combination of teachings of Gai **and Williams** to include operating in a discovery state after receiving the network configuration command until an ancestor/descendent relationship is identified as in **Ogier**. One would be motivated to do so provide an improved neighbor discovery protocol that can

efficiently establish/reestablish communications links between communications nodes (**Ogier**, page 1 paragraph [0003], lines 7-10).

9. Claims 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ogier**, U.S. Pub. No. **2003/0095504** A1 in view of Gai.

Regarding claim 21, **Ogier** teaches a method for re-establishing a network connection for a network node (i.e., *reestablish the broken link 24*, page 3 paragraph [0041], Fig. 1), the method comprising:

determining a network isolation (i.e., lost) based on an age indicator (i.e. status(B)) of a beacon packet (i.e., Hello message) received from a parent node over a network comprising a plurality of nodes (i.e., if *no Hello massage from neighbor node B is subsequently received within K * HELLO_INTERVAL, the receiving node A sets state(B) to "lost"*, Fig. 1 page 16 paragraph [0227]);

searching for a new beacon packet from a neighboring node of the plurality of nodes other than the parent node (i.e., *to perform neighbor discovery, node i periodically transmits a Hello message at predetermined interval,* page 14 paragraphs [0193]-[0194]);

receiving the new beacon packet from the neighboring node (i.e., *a node j receiving a HELLO message from a new neighbor, node i, responds with a NEIGHBOR message containing the identity of node j, sending the NEIGHBOR message to node i,* page 14 paragraph [0196]); and

transmitting a registration request to the neighboring node to establish the neighboring node as a new parent node (i.e., *node i sends the message NEW PARENT (src,sn) to node j. Upon receiving the NEW PARENT message, the new parent j adds/reregisters node i to the list of children*, page 7 paragraphs [0091]-[0092]).

Ogier does not explicitly teach at least one root node configured differently from the plurality of node, wherein the at least one root node is configured to generate and transmit beacon packets and the plurality of nodes are configured to never generate beacon packets.

Gai, in the same field of endeavor, teaches at least one root node configured differently from the plurality of node, wherein the at least one root node is configured to generate and transmit beacon packets and the plurality of nodes are configured to never generate beacon packets (i.e., in accordance with the spanning tree algorithm, the root switch generates and transmits BPDUs or beacons from its ports every hello time which is settable parameter, page 2 paragraph [0014]).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the teachings of Ogier to designate the root node to generate and transmit the beacons as taught by Gai. One would be motivated to do so to provide a loop free tree despite network changes.

Regarding claim 22, **Ogier** teaches the method of claim 21, further comprising: receiving an acknowledgement of the registration request from the neighboring node (i.e., *sends node i a link-state update message from the new parent node j*, page 7

paragraph [0029]); and establishing the neighboring node as a new parent node (i.e., *a link from node i to node j is established by node I receiving a NEIGHBOR packet from node j,* page 14 paragraph [0196].

10. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Ogier**, in view of **Meier,** and further in view of Gai.

Regarding claim 23, **Ogier** teaches a method for accepting a child node (i.e., add the sending node to node's i list of children nodes, pages 5-6 paragraph [0080]) comprising:

receiving a beacon packet (i.e., HELLO message) from a neighboring node in a network comprising a plurality of network nodes including the child node and the neighboring node (a node j receiving a HELLO message from a new neighbor, node i, page 4 paragraph [0054] and page 14 paragraph [0195]);

transmitting a registration request (i.e., a NEW PARENT (u,sn)) to a neighboring node (node i) to establish the neighboring node (i.e., sending node) as a child node (i.e., node i receives a NEW PARENT (u,sn) message from a sending node and adds the sending node to node i's list of children, pages 5-6 paragraphs [0079]- [0080]).

Ogier does not explicitly teach transmitting a discovery message on an upstream port to determine if the neighboring node is an ancestor node; and receiving an acknowledgement of the registration request if the discovery message is not later received from the neighboring node; and at least one root node configured differently

from network nodes, wherein only the at least one root node is configured to generate and transmit beacon packets and the network nodes are configured to never generate beacon packets.

Meier teaches transmitting a discovery message on an upstream port to determine if the neighboring node is an ancestor (i.e., parent) node (i.e., an AP automatically discovers its parent via Advertisement protocol, page 15 paragraphs [0356]-[0359]); and receiving an acknowledgement of the registration request (Registration-Reply to acknowledge receipt of a registration request is forwarded outbound/downstream on the reverse path of the corresponding request, page 16 paragraph [0392]) if the discovery message (i.e., advertisement message) is not later received from the neighboring node (i.e., Meier discloses advertisement message is used to discover parent node(s), page 15, paragraphs [0351]-[0361]). Since advertisement message is inbound/upstream to parent node(s), children nodes would not receive the advertisement message. Meier further discloses If a child receives an advertisement message, it becomes deregistered/unattached, see page15 paragraph [0361], page 31 paragraph [0525], and page 33 paragraph [0565]). One of ordinary skill in the art will readily recognize that a child (i.e., MN), disclosed by Meier, is registered or an acknowledgement of the registration request is replied if the child does not receive the advertisement/discovery message).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the step of verifying the ancestor/descendent relationship of **Meier** in the process of registration a child node in **Ogier**. One would be

motivated to do so to allow an error to be detected during a child/parent registration process (**Meier**, page 31 paragraph [0525]).

Gai, in the same field of endeavor, teaches at least one root node configured differently from network nodes, wherein only the at least one root node is configured to generate and transmit beacon packets and the network nodes are configured to never generate beacon packets (i.e., in accordance with the spanning tree algorithm, the root switch generates and transmits BPDUs or beacons from its ports every hello time which is settable parameter, page 2 paragraph [0014]).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the teachings of Ogier to designate the root node to generate and transmit the beacons as taught by Gai. One would be motivated to do so to provide a loop free tree despite network changes.

11. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Ogier**, in view of **Meier**, Gai and **O'Neal** et al. (hereafter, O'Neal), U.S. Pub. No. **2003/0051051** A1.

Regarding claim 24, **Ogier** teaches the method of claim 23.

Ogier does not teach transmitting determining whether the neighboring node is an ancestor node based on a stored address of the neighboring node; and the discovery message only when the stored address is not an ancestor address.

Meier teaches discovery message only when a stored address is not an ancestor address (page 15 paragraphs [0356]-[0359]).

O'Neal teaches distribution system includes nodes having database with indicate their ancestor and descendants (see abstract). O'Neal teaches determining whether the neighboring node is an ancestor node based on a stored address of the neighboring node (page 5 paragraph [0073]).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the step of determining whether the neighboring node is an ancestor node based on a stored address of the neighboring node of **O'Neal** in the process of reconfiguration of the network system in the combination of teachings of **Ogier, Gai and Meier**. One would be motivated to do so to enable network nodes' descendants and ancestors to be indicated, thereby allowing network reconfiguration to be accomplished without burdening the network system (**O'Neal**, page 1 paragraph [0017], lines 7-11).

Response to Arguments

12. Applicant's arguments with respect to claims 1-19 and 21-24 have been considered but are moot in view of the new ground(s) of rejection.

13. In addition, in the remarks, applicant argued in substance in claim 20 that

(A) Prior art does not teach configuring the group of root nodes to periodically generate beacon packets; configuring the plurality of network nodes never to generate beacon packets.

As to point (A), Gai does teach configuring the group of at least one root node to periodically generate beacon packets; configuring the plurality of network nodes never to generate beacon packets (i.e., execution of the spanning tree algorithm causes the switches to elect a single switch, among all the switches within each network, to be the root switch that generates and transmits BPDUs from its ports every hello time, page 1 paragraph [0009] and page 2 paragraph [0014]).

Conclusion

14. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Oanh Duong whose telephone number is (571) 272-3983. The examiner can normally be reached on Monday- Friday, 9:30PM - 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on (571) 272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

O.D
September 27, 2006

SALEH NAJJAR
SUPERVISORY PATENT EXAMINER